CTNR 4 10

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/281,831	03/30/99	TAI Y	06618/425001

MMC2/0908

SCOTT C HARRIS
FISH & RICHARDSON
SUITE 1400
4225 EXECUTIVE SQUARE
LA JOLLA CA 92037

EXAMINER	
PEREZ,G	
ART UNIT	**PAPER NUMBER**
2834	

DATE MAILED: 09/08/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/281,831	TAI ET AL.	
	Examiner	Art Unit	
	Guillermo Perez	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15)☐ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 28, 2000 has been entered.

Election/Restrictions

Newly submitted claims 10 to 15 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process can be used to manufacture transformers, circuit boards, and other electric circuit based devices.

Because these inventions are distinct for the reasons given above and the search required for claims 1 to 6 is not required for claims 10 to 15, restriction for examination purposes as indicated is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 10 to 15 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1 to 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brailsford (U. S. Pat. No. 4,475,068) in view of Posey (U. S. Pat. No. 5,293,523) and further in view of Bornand (U.S. Pat. No. 5, 605, 614).

Brailsford discloses a DC motor (Figures 2 and 3) comprising:

a plurality of windings (21-24);

at least one magnetostatic relay (37-38) positioned in the motor to

activate in the presence of a magnetic field, such that the magnetostatic actuation force causes said magnetic actuation plate to align itself with the magnetic field (see abstract lines 4-8), where each relay (37-38) is

connected electrically to at least one corresponding winding (21-24) and

to power; and

a magnetic four-pole rotor (31) having at least one pole (32-35) positioned to induce a magnetic field in each magnetostatic relay (37-38) when passing

by the relay (37-38); and that

the windings (21-24) are arranged in pairs of primary and secondary windings (21-22 and 23-24) and each relay (37-38) connects to a corresponding one of the pairs of windings (21-24); and that

the secondary windings (21 and 23) all connect to a common node (41) and each of the primary windings (22 and 24) connects to the corresponding relay (37-38). However, Brailsford does not disclose at least one microelectronic mechanical system (MEMS) relay positioned in the motor to activate in the presence of a magnetic field, where each relay has a first substrate formed from a nonconductive or semiconductive material; nor a magnetic actuation plate micro-machined on said first substrate, said magnetic actuation plate having a first conductive surface; nor a second substrate provided adjacent to said magnetic actuation plate, said second substrate having a nonconductive surface and a second conductive surface; nor a springing beam etched on the substrate; nor two electrically conductive elements, one formed on the springing; where the springing beam includes a magnetic material; where said first and second conductive surfaces/elements define at least two switching states, including an open state in which the conductive surfaces/elements are physically separated from each other, and a closed state in which the conductive surfaces/elements physically contact each other; where said magnetic material actuation plate, in the presence of a magnetic field, creates an actuation force that causes the electrically conductive surfaces to switch from one of the switching states to another of the switching states.

Posey discloses a relay having:

at least one substrate (48) formed from a nonconductive or semiconductive material (column 5, lines 16 to 19);

a springing beam (42) formed on the substrate (48); and

two electrically conductive elements (42 and 44), one formed on the springing beam (42), that together define at least two switching states, including an open state in which the conductive elements are physically separated from each other (figure 3A), and a closed state in which the conductive elements physically contact each other (figure 3B);

where the springing beam (42) includes a magnetic material (50) which, in the presence of a magnetic field, creates a magnetostatic actuation force that causes the electrically conductive elements to apply power to or remove power from at least one of the windings by switching from one of the switching states to another of the switching states, for the purpose of avoiding an undesirable change in the magnetic flux field, which renders the switch insensitive to the proximateness of the permeable target object.

Bornand (U.S. Pat. No. 5, 605, 614) discloses at least one microelectronic mechanical system (MEMS) relay (figure 1) which is activated under the presence of a magnetic field (16);

a magnetic actuation plate (14) micro-machined on a first substrate, such that a magnetostatic actuation force causes said magnetic actuation plate to align itself with the magnetic field (column 4, lines 38-43), said magnetic actuation plate having a first conductive surface (12, 13); and

a second substrate (1) provided adjacent to said magnetic actuation plate, said second substrate having a nonconductive surface and a second conductive surface (9, 10); and

a springing beam (5) etched on the substrate; and

two electrically conductive elements (12, 13, 2, 11), one formed on the springing beam (12, 13), that together define at least two switching states; where the springing beam includes a magnetic material (14), for the purpose of miniaturizing the electrical circuits to be opened and closed in an electrical system.

It would have been obvious at the time the invention was made to modify the DC motor of Brailsford and provide it with a relay having: at least one substrate formed from a nonconductive or semiconductive material; and a springing beam formed on the substrate; and two electrically conductive elements, one formed on the springing beam, that together define at least two switching states, including an open state in which the conductive elements are physically separated from each other, and a closed state in which the conductive elements physically contact each other; where the springing beam includes a magnetic material which, in the presence of a magnetic field, creates an actuation force that causes the electrically conductive elements to apply power to or remove power from at least one of the windings by switching from one of the switching states to another of the switching states, as disclosed by Posey; and with at least one microelectronic mechanical system (MEMS) relay which is activated under the presence of a magnetic field; and a magnetic actuation plate micro-machined on a first substrate, said magnetic actuation plate having a first conductive surface; and a second substrate

provided adjacent to said magnetic actuation plate, said second substrate having a nonconductive surface and a second conductive surface; and a springing beam etched on the substrate; and two electrically conductive elements, one formed on the springing beam, that together define at least two switching states, such that a magnetostatic actuation force causes said magnetic actuation plate to align itself with the magnetic field; where the springing beam includes a magnetic material as disclosed by Bornand, for the purpose of avoiding an undesirable change in the magnetic flux field, which renders the switch insensitive to the proximateness of the permeable target object and miniaturizing the electrical circuits to be opened and closed in an electrical system.

2. Claims 4 to 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brailsford in view of Posey and further of Bornand in view of Tanikoshi (U.S. Pat. No. 3, 900, 780).

Brailsford, Posey and Bornand disclose a DC motor as described on item 1 above. However, neither Brailsford, Posey nor Bornand disclose that the motor is a three-phase motor; nor that the motor includes three relays separated from each other by approximately 120°.

Tanikoshi discloses that the motor is a three-phase motor (figure 7); and that the motor includes three relays separated from each other by approximately 120° (column 5, lines 40-49) for the purpose of controlling with a higher degree of accuracy the switching operations of the magnetic - sensitive elements.

It would have been obvious at the time the invention was made to modify the DC motor of Brailsford and provide it with a three-phase motor including three relays

separated from each other by approximately 120° for the purpose of enhancing the switching operations of the relays during rotation of the motor rotor.

Response to Arguments

Applicant's arguments filed June 28, 2000 have been fully considered but they are not persuasive. According to the Merriam-Webster's Collegiate Dictionary tenth edition, a magnetostatic force is a force being produced by a stationary magnetic field. Based on this definition, it is clearly stated in Brailsford and in Bornand that the actuation of the magnetic actuation plate is effected by a magnetostatic force, since the source of the magnetostatic force are permanent magnets (31 in Brailsford and 16 in Bornand). The permanent magnets are sources of a stationary magnetic filed which produces a magnetostatic force on a magnetic surface, depending on its polarity.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
September 6, 2000